DOCUMENT RESUME

ED 411 945 PS 025 642

AUTHOR Normandeau, Sylvie; Cantin, Stephane
TITLE Children's Behavioral Characteristics and Their Ability to Detect Social Contingency.
PUB DATE 1997-04-00
NOTE 12p.; Paper presented at the Biennial Meeting of the Society for Research in Child Development (62nd, Washington, DC, April 3-6, 1997).
PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Age Differences; Aggression; *Children; Cognitive Ability; Foreign Countries; *Interpersonal Competence; Memory; Primary Education; *Prosocial Behavior; Sex Differences; Test Validity

ABSTRACT

Studies have suggested that the presence of individual differences in children's ability to detect social contingencies may be related to their behavioral characteristics, as a result of cumulative transactions with their physical and social environments. This study sought to identify behavioral characteristics associated with children's ability to detect social contingency and to validate the Detection of Social Contingency (DSC) task. A total of 87 kindergartners and 102 second graders completed the DSC, two measures of cognitive abilities, and a measure of memory span. The children's teachers completed a social behavior questionnaire. Results showed that 29 percent of kindergartners and 49 percent of second graders successfully completed the DSC task, and girls were more likely to detect social contingency than boys. Children who completed the task demonstrated a better memory span than children who did not. Children who learned the contingency rule of the DSC task were more prosocial than those who did not. Among children who were not able to learn the rule, boys were more aggressive than girls. The study shows the discriminant and convergent validity of the DSC task with both age groups. (Contains 13 references.) (MDM)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)
X This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

ED 411 945

CHILDREN'S BEHAVIORAL CHARACTERISTICS AND THEIR ABILITY TO DETECT SOCIAL CONTINGENCY.

Sylvie Normandeau[1] and Stéphane Cantin[2]
1 Université de Montréal, Canada
2 Université Laval, Canada.

PERMISSION TO REPRODUCE AND
DISSEMINATE THIS MATERIAL
HAS BEEN GRANTED BY
Sylvie Normandeau
TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)

This paper was presented at the Biennial Meeting of the Society for Research in Child Development. Washington, DC - April 3-6, 1997. **Requests for information should be sent to Sylvie Normandeau, Ph.D., Associate Professor, Université de Montréal, School of Psychoeducation, P.O.Box 6128, Centreville, Montréal (Qc), Canada, H3C 3J7. E-mail: normande@ere.umontreal.ca**

PS 025642

BEST COPY AVAILABLE

ABSTRACT

The purpose of this study was 1) to validate the Detection of Social Contingency task (DSC) and 2) to identify behavioral characteristics associated with children's ability to detect social contingency. Participants were 87 kindergarten and 102 second grade children. Two (detection (D)/ non detection (ND)) X (gender) X (grade) analyses of variance on two measures of cognitive abilities and a Social Perception task confirmed respectively the discriminant and the convergent validity of the DSC task. Two (detection (D)/ non detection (ND)) X (gender) X (grade) analyses of variance with children's memory span as a covariable were calculated on measures of children's aggressive, anxious-withdrawn, and prosocial behavior. There was no differences between boys and girls who succeeded the DSC task on the agressive or prosocial scales. However, among children who were not able to learn the social contingency rule, boys were more aggressive and less prosocial than girls. Children's ability to detect social contingency was not related to their anxious-withdrawn behavior.

INTRODUCTION

During infancy, the learning of contingencies is often presented as a building block in cognitive and socioemotional development which may possibly be related to other manifestations of functioning during later periods of development (see Tarabulsy et al., 1996 for a review of the literature). During childhood, Wood (1988) has suggested that knowing how to make one's attention and actions contingent upon the requests, demands, and needs of others is one of the primary abilities underlying the capacity to learn. Giuliani and Bigras (1995) observed a positive relation between mothers' contingent behavior upon their child's behavior and their child's performance on the Detection of Social Contingency task (DSC). Dumas and LaFrenière (1995) as well as Westerman (1990) have reported an association between children's behavioral characteristics and the quality of the contingency observed between mothers' behavior and their child's behavior. Mothers of competent children behaved more contingently upon their child's behavior than mothers of aggressive or anxious-withdrawn children (Dumas & LaFrenièrer, 1995; Westerman, 1990). In the sociocognitive domain, children's ability to discriminate facial expressions in a social partner is an important dimension of social cognitive development in children (e.g., Miller & Aloise, 1989; Poulin-Dubois & Shultz, 1988). It influences their understanding of other persons' behavior and consequently their own response to the other persons. Studies have reported that aggressive, rejected or depressed children falsely make hostile attributions in the context of ambiguous social interactions (e.g., Dodge, 1980; Dodge et al., 1984; Garber et al., 1989).

All these studies concur to suggest that the presence of individual differences in children's ability to detect social contingencies may be related to their behavioral characteristics, as a result of cumulative transactions with their physical and social environments. The purpose of this study was 1) to validate the Detection of Social Contingency task (DSC) and 2) to identify behavioral characteristics associated with children's ability to detect social contingency.

METHOD

SUBJECTS: Participants were 87 kindergarten (46 boys, 41 girls) (mean age = 6.1 years, s.d. = 0.3) and 102 second grade (44 boys, 58 girls) (mean age = 8.1, s.d. = .3) children.

PROCEDURE: The following measures were individually administered to the children: The Detection of Social Contingency task (DSC) (Giuliani & Bigras, 1995), two measures of cognitive abilities (TONI-2; Brown et al., 1990; PPVT-R; Dunn et al., 1993), a measure of memory span from the WISC-R, the Social Perception task (Suess et al., 1992). Children's aggressive, anxious-withdrawn, and prosocial behavior was evaluated through their teacher's observation who completed the Social Behavior Questionnaire (Tremblay et al., 1987).

INSTRUMENTS

Detection of Social Contingency Task (DSC): The DSC task (Giuliani & Bigras, 1995) was adapted from Shultz and Cloghesy (1981). The child must correctly identify the hidden color of a series of cards presented one at a time. While presenting a card, the experimenter (E) gives a clue to the child by pointing one of two color cards placed on the table. This clue is combined with a facial expression (smiling or neutral). The task was presented following one of two formats: 1) Format A: E shows a neutral face when the clue is false and a smiling face when the clue is true; 2) Format B: E shows a smiling face when the clue is false and a neutral face when the clue is true. Children were randomly assigned to either format. Over a series of 21 trials, the child must learn the contingency between E's pointing of a card and the facial expression as to determine on which trials E's pointing of the card is a true or a false clue. Fifteen more trials.
were presented to assess the child's ability to detect social contingencies.

Cognitive Abilities: The Test of Non Verbal Intelligence (TONI-2), (Brown et al., 1990) and the French version of the PPVT-R (Dunn et al., 1993) were designed to assess respectively children's problem-solving abilities with a figural content and their receptive language abilities. They both assess aspects usually found in traditional measures of intelligence and are considered good indicators of children's general cognitive abilities.

Memory Span: The Digit Span subtest of the WISC-R was administered to the children.

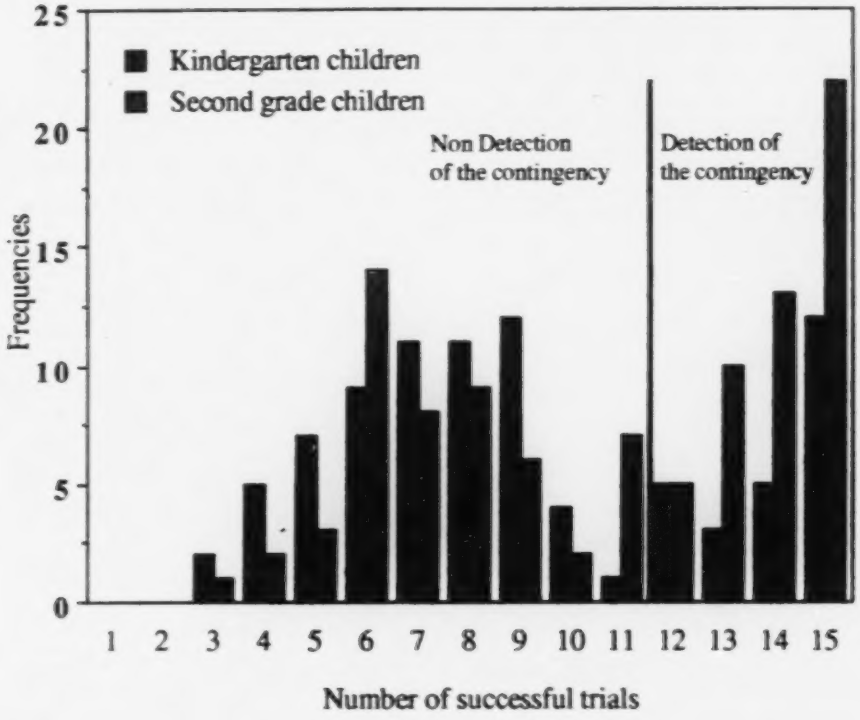
Social Perception Task (SPT): The SP task was adapted from Suess et al. (1992). Six cartoons depicting typical social conflict situations among children were presented. Two of the six situations showed obvious hostile intentions, two showed unintentional accidents, and two were ambiguous as to the intention. Children's accuracy in identifying the intentionality or not of each incident was used as a measure of children's ability to detect intentions in a social context.

Social Behavior Questionnaire (SBQ): The SBQ (Tremblay et al., 1987) is formed of three subscales assessing aggressive (13 items), prosocial (10 items), and anxious-withdrawn (6 items) behaviors. For each item, teachers indicated on a 3-point scale if the behavior described was frequent, occasional, or not applicable to the child. Studies have confirmed the three-factor structure of the questionnaire as well as the concurrent and predictive validity of the instrument (Tremblay et al., 1987).

RESULTS

Figure 1

Distribution of the scores on the Detection of Social Contingency task



Scores presented a bimodal distribution in both grades. The cut off point of 12 successful trials out of 15 trials was used to identify children who had been able to learn the contingency rule. Using a cut off point of 12, the probability that children's success be attributed to luck is less than 5%. Respectively 29% and 49% of kindergarten and second grade children successfully completed the task.

Children are more likely to detect the contingency rule when presented with Format B (47% of children) than with Format A (32% of children) ($\chi^2(1, N = 189) = 4.25$, $p < .03$). When smiling is contingent to a false clue children are more likely to recognize deception. Girls (50%) were more likely to detect social contingencies than boys (27%), (χ^2 (1, N = 189) = 10.28, $p < .001$).

DISCRIMINANT AND CONVERGENT VALIDITY OF THE DETECTION OF SOCIAL CONTINGENCY TASK

Two (detection (D)/ non detection (ND)) X (gender) X (grade) analyses of variance were conducted on measures of cognitive abilities, memory span, and the social perception task.

Table 1

Mean scores and standard deviation on measures of cognitive abilities, memory span, and the social perception task for boys and girls who succeede or not the DCS task

	Girls		Boys	
Measures	Non Detection (<12)	Detection (≥12)	Non Detection (<12)	Detection (≥12)
Verbal Inteligence	99.67 (24,35) (n=52)	104.67 (19.47) (n=52)	94.53 (24.15) (n=62)	108.96 (21.88) (n=23)
Non Verbal Intelligence	95.67 (12.86) (n=52)	100.02 (16.38) (n=52)	96.35 (12.85) (n=62)	100.00 (12.07) (n=23)
Memory Span	8.20 (3.33) (n=41)	10.16 (3.03) (n=44)	8.19 (3.48) (n=43)	9.00 (3.05) (n=21)
Social Perception Task	0.87 (0.19) (n=41)	0.98 (0.05) (n=44)	0.90 (0.19) (n=43)	0.95 (0.17) (n=21)

Note: There was no D/ND or Gender x Grade effects on each one of these measures.

COGNITIVE ABILITIES: No differences were observed between D and ND children or between genders on measures of verbal and nonverbal cognitive abilities. These results suggest that the DSC task measures sociocognitive abilities that are different from cognitive abilities (discriminant validity). Grade 2 children performed better than kindergarten children on the PPVT-R ($F(1, 188) = 40.38$, $p < .001$), and on the TONI-2 ($F(1, 188) = 11.94$, $p < .001$).

MEMORY SPAN: D children showed a better memory span than ND children ($F(1, 148) = 4.16$, $p < .04$). Moreover, a D/ND X Gender interaction indicated that D girls showed a better memory span than ND girls ($F(1, 148) = 4.48$, $p < .04$). Such relation was not observed among boys. Grade 2 children performed better on the memory span task than kindergarten children ($F(1, 148) = 38.89$, $p < .001$). Since a positive relation was observed between children's memory span and their ability to detect contingency, memory span was used as a covariable in further analyses.

SOCIAL PERCEPTION TASK: This task requires that children correctly detect the intentionality of a child's behavior in typical conflict situations. Results indicated that successful children at the DSC task were showing greater ability in detecting the social contingency in the different interaction contexts of the Social Perception task (F (1, 187) = 5.91, $p < .016$) (convergent validity). As expected, Grade 2 children performed better on the Social Perception task than kindergarten children (F (1, 187) = 26.59, $p < .001$). These results indicate a relation between children's ability to learn social contingencies and their ability to accurately detect intentionality in social conflict situations (convergent validity).

ARE CHILDREN'S BEHAVIORAL CHARACTERISTICS ASSOCIATED WITH THEIR ABILITY TO DETECT SOCIAL CONTINGENCY?

Two (detection (D)/ non detection (ND)) X (gender) X (grade) analyses of variance with children's digit span score as a covariable were calculated on children's scores on the scales of aggressive, anxious-withdrawn, and prosocial behavior.

Table 2

Mean scores and standard deviation on the scales of aggressive, anxious-withdrawn, and prosocial behavior for boys and girls who succeeded og not the DCS task

	Girls		Boys	
Behavior	Non Detection (<12) (n=40)	Detection (≥12) (n=41)	Non Detection (<12) (n=41)	Detection (≥12) (n=20)
Prosocial	10.20 (4.32)	10.88 (4.89)	6.49 (4.05)	10.20 (3.37)
Aggressive	3.74 (4.07)	5.27 (6.49)	6.99 (6.61)	4.38 (4.60)
Anxious-withdrawn	3.45 (2.79)	3.17 (2.77)	3.73 (2.50)	4.35 (2.80)

Note: There was no D/ND or Gender x Grade effects on each one of these measures.

Children's memory span was not related to either aggressive, anxious-withdrawn or prosocial behaviors. Main effects of D/ND and of Gender were observed with regard to children's prosocial behavior. D children (M = 10.65) showed higher scores on the prosocial scale than ND children (M = 8.32), (F (1, 140) = 5.10, $p < .026$). Girls (M = 10.54) had higher scores on the prosocial scale than boys (M = 7.70), (F (1, 140) = 10.83, $p < .001$). A D/ND X Gender

interaction was also observed on the prosocial behavior scale, (F (1, 140) = 4.03, $p < .047$). Post-hoc analyses indicated that ND boys (M = 6.49) had significantly lower scores on the prosocial behavior scale than ND girls (M = 10.20) (F (1,78) = 15.79, $p < .001$), but there were no differences between D girls and D boys. A D/ND X Gender interaction effect was also observed on aggressive behavior (F (1, 141) = 6.04, $p < .015$). Again, post-hoc analyses indicated that ND boys (M = 6.99) had significantly higher scores on the aggressive behavior scale than ND girls (M = 3.74), (F (1,78) = 7.02, $p < .01$), but there were no differences between D girls and D boys. Finally children's score on the anxious-withdrawn behavior scale was not related to either their ability to learn the contingency rule, their gender, or their grade.

CONCLUSIONS

Consonant with a previous study by Giuliani and Bigras (1995), the present results have shown the discriminant and convergent validity of the DSC task with 5- and 7-year-old children. Consistent with previous studies on children's attributions of intentions (e.g., Dodge, 1980; Dodge et al., 1984) the present results have demonstrated an association between children's behavior and their social perception ability. The present results expand previous studies by indicating a link between children's behavior and their ability to learn social contingencies during a dyadic interaction.

As expected, an association between children's ability to detect social contingency and their prosocial or aggressive behavior during a dyadic interaction was observed. Children who learned the contingency rule of the DSC task were more prosocial. Boys and girls who were able to learn the contingency rule were not different with regard to their aggressive and prosocial behavior. However, among children who were not able to learn the social contingency rule, boys were more aggressive and less prosocial than girls. These results suggest that difficulties in paying attention to their social environment stimuli is more typical of boys presenting more aggressive or less prosocial behavior than it is of girls. They also suggest that boys' ability to detect social contingencies may serve as a protective factor in the development of aggressive behavior. These results are consonant with other studies suggesting different correlates of aggressiveness in boys and girls. Children's ability to detect social contingency was not related to their anxious-withdrawn behavior. Anxious-withdrawn children's high sensitivity to social evaluative feedback

in their social environment may explain partially the absence of observed differences (Asendorf, 1990; Zupan et al., 1987).

REFERENCES

Asendorf, J.B. (1990). Beyond social withdrawal: Shyness, unsociability, and peer avoidance. Human Development, 33, 250-259.

Dodge, K.A. (1980). Social cognition and children's aggressive behavior. Child Development, 51, 162-170.

Dodge, K.A., Murphy, R.R., & Buchsbaum, K. (1984). The assessment of intention-cue detection skills in children: Implications for developmental psychopathology. Child Development, 55, 163-173.

Dumas, J.E., & LaFrenière, P.J. (1995). "Balence of power": A transactional analysis of control in mother-child dyads involving socially competent, aggressive, and anxious children. Journal of Abnormal Psychology, 104, 104-113.

Garber, J., Quiggle, N.L., Panak, W., & Dodge, K.A. (1989). Aggression and depression in children: Comorbidity, specificity, and social cognitive processing. In D. Cicchetti (Ed.), The emergence of a discipline: Rochester Symposium on Developmental Psychology, vol 1, 2 (pp. 225-264). Hillsdale, NJ: Erlbaum.

Giuliani, L., & Bigras, M. (1995). Effects of the quality of mother-child interaction on children's ability to detect social contingency. Communication presented at the Biennial Meeting of the Society for Research in Child Development, March 30-April 2, Indianapolis, Indiana.

Miller, P.H., & Aloise, P.A. (1989). Young children's understanding of the psychological causes of behavior: A review. Child Development, 60, 257-285.

Poulin-Dubois, D., & Shultz, T.R. (1988). The development of the understanding of human behavior: From agency to intentionality. In J.W. Astington, P.L. Harris, & D.R. Olson (Eds), Developing theories of mind (pp.109-125). Cambridge: Cambridge University Press.

Suess, G.J., Grossman, K.E., & Sroufe, L.A. (1992). Effects of infant attachment to mother and father on quality of adaptation in preschool: From dyadic to individual organization of self. International Journal of Behavioral Development, 15, 43-65.

Tarabulsy, G.M., Tessier, R., & Kappas, A. (1996). Contingency detection and the contingent organization of behavior in interactions: Implications for socioemotional development in infancy. Psychological Bulletin, 120, 25-41.

Westerman, M.A. (1990). Coordination of maternal directives with preschoolers' behavior in compliance problem and healthy dyads. Developmental Psychology, 26, 621-630.

Wood, D. (1988). How children think and learn: The social context of cognitive development. Oxford: Basic Books.

Zupan, B.A., Hammen, C., & Jaenicke, C. (1987). The effects of current mood and prior depressive history on self-schematic processing in children. Journal of Experimental Child Psychology, 43, 149-158.